

AMENDMENTS TO THE CLAIMS

This listing will replace all prior versions,
and listings, of claims in the application:

5 **Listing of Claims:**

1. - 129. (cancelled).

130. (withdrawn) A method for the assessment of at
least one parameter of particles in a liquid analyte
10 material, comprising

 providing a device comprising a sample
 compartment comprising an exposing domain, an
 inlet through which a volume of a liquid sample
 representing the analyte material can be
15 introduced, and a flow system comprising at
 least a channel allowing at least a portion of
 the volume of the liquid sample to flow within
 the device,

 introducing a volume of the liquid sample in
20 the device through the inlet of the
 disposable device, passing at least a portion
 of the volume of the liquid sample through
 the flow system of the into the exposing
 domain of the sample compartment,

25 arranging the device in relation to detection
 device comprising detection means for
 quantitatively detecting spatial image data
 and processing means for processing the
 detected image presentation

5 detecting electromagnetic signals from the sample in
the exposing domain of the device in the
detection device forming, in the detection
device, a spatial image representation of the
exposing domain, and
processing the detected image presentation
obtaining the assessment of the at least one
parameter.

10 131. (withdrawn) A method according to claim 130,
wherein one or more reaction components initially
loaded in a compartment or flow channel part of the
flow system of the disposable device is added to at
least a portion of the volume of the liquid sample
15 representing the analyte material.

132. (withdrawn) A method according to claim 131,
wherein the reaction components comprise one or more
chemicals in solid form.

20 133. (withdrawn) A method according to claim 132,
wherein the reaction components comprise one or more
chemicals in solid form in combination with one or more
solubilizing agents aiding the solubilization of the
chemicals in the liquid sample.
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134. (withdrawn) A method according to claim 132,
wherein at least one of the reaction components has
been loaded in freeze-dried form.

30 135. (withdrawn) A method according to claim 130,
wherein any longitudinal gradient present in the liquid

sample in the flow system is substantially reduced by passing the liquid sample through a part of a flow channel of the flow system of the device having a shape and/or size resulting in substantially reduction of longitudinal gradients in liquids passing there through.

136. (withdrawn) A method according to claim 130, wherein the part of the flow channel has at least one bend or obstruction resulting in substantially turbulent flow in the liquid passing the bend or obstruction.

137. (withdrawn) A method according to claim 130, wherein the velocity of the flow into, within, or out of the device is regulated by means of one or more regulating means constituting part of the flow system, wherein the flow regulating means comprise means selected from stop valves, one way valves, and pressure and/or speed reduction valves.

138. (withdrawn) A method according to claim 130, wherein one or more operations selected from the group consisting of filtration, concentration and magnetic attraction is/are performed, the device comprising the means for performing such operation or operations.

139. (withdrawn) A method according to claim 130, wherein the detection of the spatial image representation is performed by means of an array of active detection elements onto which array the spatial image presentation is exposed.

140. (withdrawn) A method according to claim 130,
wherein the signal which is detected by detection
device substantially originates from one or several
5 types of molecules of types which bind to, are retained
within, or interact with, the particles, such molecules
being added to the sample before or during exposure of
electromagnetic signals, the molecules being molecules
giving rise to one or several of the following
10 phenomena: attenuation of electromagnetic radiation,
photoluminescence when illuminated with electromagnetic
radiation, scatter of electromagnetic radiation, Raman
scatter.

141. (withdrawn) A method according to claim 131, one
or more reaction components initially loaded in a
compartment or flow channel part of the flow system of
the device is one or more nucleic acid dyes and/or one
or more potentiometric membrane dyes.

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142. (withdrawn) A method according to claim 141,
wherein one or more nucleic acid dyes is/are selected
from the group consisting of: phenanthridines (e.g.
ethidium bromide CAS#: 1239-45-8, propidium iodide
25 CAS#: 25535-16-4), acridine dyes (e.g. acridine orange
CAS#: 65-61-2 CAS#: 10127-02-3), cyanine dyes (e.g.
TOTOTM-1 iodide CAS#: 143 413-84-7 -Molecular Probes,
YOPROTM-1 iodide CAS#: 152 068-09-2 -Molecular Probes),
indoles and imidazoles (e.g. Hoechst 33258 CAS#: 023
30 491-45-4, Hoechst 33342 CAS#: 023 491-52-3, DAPI CAS#:
28718-90-3, DIPI (4',6-(diimidazolin-2-yl)-2-
phenylindole)).

143. (withdrawn) A method according to claim 141,
wherein the nucleic acid dye added is propidium iodide
CAS#: 25535-16-4.
- 5 144. (withdrawn) A method according to claim 130,
wherein particle being assessed is a result of one or
several reaction(s) between one or more antibodies and
one or more antigens.
- 10 145. (withdrawn) A method according to claim 130,
wherein the assessment of particles is carried out
substantially simultaneously with the determination of
the amount and/or the level of any constituent in said
sample material, the constituent being determined
15 being, e.g., one or several of: fat, protein, lactose,
urea, citric acid, glucose, ketones, carbon dioxide,
oxygen, pH, potassium, calcium, sodium.
- 20 146. (withdrawn) A method according to claim 145,
wherein the determination of any chemical property is
based on spectrophotometric measurement, the
spectrophotometric measurement being, e.g., one or
several of; mid-infrared attenuation, near-infrared
attenuation, visible attenuation, ultra-violet
25 attenuation, photoluminescence, raman scatter, nuclear
magnetic resonance.
- 30 147. (withdrawn) A method according to claim 130,
wherein the interior of the sample compartment has an
average thickness of between 20 μm and 2000 μm ,
preferably between 20 μm and 1000 μm , more preferably
between 20 μm and 200 μm .

148. (withdrawn) A method according to claim 130,
wherein sample compartment has dimensions, in a
direction substantially parallel to an exposing window,
5 in the range between 1 mm by 1 mm and 10 mm by 10 mm.

149. (withdrawn) A method according to claim 130,
wherein the volume of the liquid sample from which
electromagnetic radiation is exposed, is in the range
10 between 0.01 μ l and 20 μ l, more preferably between 0.04
 μ l and 4 μ l.

150. (withdrawn) A system for the assessment of at least
one parameter of particles in a liquid analyte
15 material, comprising a device comprising a sample
compartment comprising an exposing domain, an inlet
through which a volume of a liquid sample representing
the analyte material can be introduced, and a flow
system comprising at least a channel allowing at least
20 a portion of the volume of the liquid sample to flow
within the device,

a detection device comprising detection means for
quantitatively detecting spatial image data and
processing means for processing the detected image
25 presentation, the device and the detection device
having means for arranging the device in relation to
the detection device in a manner allowing
electromagnetic signals from a sample in the exposing
domain of the device to pass to the detection device
30 and to form, in the detection device, a spatial image
representation of the exposing domain.

151. (withdrawn) A system according to claim 150,
wherein the flow system additionally comprises a
compartment or a flow channel part in or from which at
least part of one or more reaction components initially
5 loaded in the compartment or flow channel part is added
to at least a portion of the volume of the liquid
sample representing the analyte material, preferably
wherein at least one of the reaction components loaded
into the compartment or flow channel is in solid form.

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152. (withdrawn) A system according to claim 151,
wherein the reaction components comprise one or more
chemicals in solid form in combination with one or more
solubilizing agents aiding the solubilization of the
15 chemicals in the liquid sample.

153. (withdrawn) A system according to claim 150,
wherein the part of the flow channel provides
substantial laminar flow therethrough and/or comprises
20 one or more mixing chambers.

154. (withdrawn) A system according to claim 150,
wherein at least a part of a flow channel of the device
has such a shape and/or size that passage of the liquid
25 sample through it will substantially reduce any radial
gradient present in the liquid sample, the part of the
flow channel having at least one bend or obstruction
resulting in substantially turbulent flow in liquid
passing the bend or obstruction.

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155. (withdrawn) A system according to claim 150,
wherein the flow system comprises velocity regulating

means selected from stop valves, one way valves, and pressure and/or speed reduction valves.

5 156. (withdrawn) A system according to claim 150, wherein the device comprises means for performing one or more operations on the liquid sample, the operations being selected from the group consisting of filtration, concentration and magnetic attraction.

10 157. (withdrawn) A system according to claim 151, wherein one or more reaction components initially loaded in a compartment or flow channel part of the flow system of the device is one or more nucleic acid dyes and/or one or more potentiometric membrane dyes in
15 an amount of 0.3-30 μg per ml of the sample.

158. (withdrawn) A system according to claim 150, wherein the determination of a chemical property of the sample is based on spectrophotometric measurement, the
20 spectrophotometric measurement being, e.g., one or several of; mid-infrared attenuation, near-infrared attenuation, visible attenuation, ultra-violet attenuation, photoluminescence, Raman scatter, nuclear magnetic resonance.

25 159. (withdrawn) A system according to claim 150, wherein the determination of any chemical property is based on potentiometric measurement, preferably by the use of ion selective electrode.

30 160. (withdrawn) A system according to claim 150, wherein the interior of the sample compartment has an

average thickness of between 20 pm and 2000 pm, preferably between 20 μ m and 1000 μ m, more preferably between 20 μ m and 200 μ m.

- 5 161. (withdrawn) A system according to claim 150, wherein sample compartment has dimensions, in a direction substantially parallel to an exposing window, in the range between 1 mm by 1 mm and 10 mm by 10 mm.
- 10 162. (withdrawn) A system according to claim 150, wherein the volume of the liquid sample from which electromagnetic radiation is exposed, is in the range between 0.01 μ l and 20 μ l, preferably between 0.04 μ l and 4 μ l.
- 15 163. (currently amended) A device adapted to be used in a system for the assessment of at least one parameter of particles in a liquid analyte material, the a device comprising
- 20 - a sample compartment comprising an exposing domain, said exposing domain allowing electromagnetic signals from a sample in the exposing domain to pass to a detection device and to form, in the detection device, a spatial image representation of
- 25 the exposing domain processable by processing means of the detection device,
- 30 - an inlet through which a volume of a liquid sample representing the analyte material can be introduced,
- 30 - a flow system comprising at least a channel allowing at least a portion of the volume of the liquid sample to flow within the device,

- 5 - ~~and means for arranging the device in relation to the detection device, , which detection device comprises detection means for quantitatively detecting spatial image data and processing means for processing the detected image presentation in a manner allowing electromagnetic signals from a sample in the exposing domain of the device to pass to the detection device and to form, in the detection device, a spatial image representation of the exposing domain processable by the processing means of the detection device and means for disengaging the device from the detection device after the detection by the detection means,~~
- 10 - the device having no sample outlet.
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164. (currently amended) A device according to claim 163, wherein the flow system additionally comprises a compartment or a flow channel part in which or from which at least part of one or more reaction components initially loaded in the compartment or flow channel part is added to at least a portion of the volume of the liquid sample representing the analyte material.

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165. A device according to claim 164, wherein at least one of the reaction components is in freeze-dried form.

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166. (currently amended) A device according to claim 163, wherein the part of the flow channel provides ~~substantial~~ laminar flow therethrough and/or comprises ~~one or more mixing chambers~~ in the liquid sample.

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167. (currently amended) A device according to claim
163, wherein ~~the~~ part of the ~~flow~~ channel has at least
one bend or obstruction resulting in ~~substantially~~
turbulent flow in liquid passing the bend or
5 obstruction.

168. (currently amended) A device according to claim
163, wherein the flow system comprises one or more
means for regulating the velocity of the flow into,
10 within, or out of the device, the velocity regulating
means comprising means selected from the group
consisting of: stop valves, one way valves, ~~and~~
pressure valves ~~and/or~~ speed reduction valves.

15 169. (currently amended) A device according to claim
163, ~~which~~ wherein the device comprises means for
performing one or more operations on the liquid
sample, the operations being selected from the group
consisting of filtration, concentration and magnetic
20 attraction.

170. (currently amended) A device according to claim
163, containing one or more compartment(s) or domain
which allows ~~on~~-spectrophotometric measurement for the
25 determination of any chemical property, the
spectrophotometric measurement ~~e.g., one or several~~
~~of,~~ being selected from the group consisting of: mid-
infrared attenuation, near-infrared attenuation,
visible attenuation, ultra-violet attenuation,
30 photoluminescence, raman scatter, and nuclear magnetic
resonance.

171. (currently amended) A device according to claim
163, wherein the interior of the sample compartment
has an average ~~thickness~~ depth of between 20 μm and
2000 μm , ~~preferably between 20 μm and 1000 μm , more~~
5 ~~preferably between 20 μm and 200 μm .~~

172. (currently amended) A device according to claim
163, wherein sample compartment has dimensions, in a
~~direction substantially~~ plane parallel to an exposing
10 window, in the range between 1 mm by 1 mm and 10 mm by
10 mm.

173. (currently amended) A device according to claim
163, wherein the volume of the sample compartment from
15 which electromagnetic radiation is exposed, is in the
range between 0.01 μl and 20 μl , ~~more preferably in~~
~~the range between 0.04 μl and 4 μl .~~

174. (previously presented) A device according to
20 claim 163, wherein the flow system comprises one or
more mixing chambers.

175. (previously presented) A device according to
claim 163, wherein the interior of the sample
25 compartment has an average depth of between 20 μm and
1000 μm .

176. (previously presented) A device according to
claim 163, wherein the interior of the sample
30 compartment has an average depth of between 20 μm and
200 μm .

177. (previously presented) A device according to claim 163, wherein the volume of the sample compartment from which electromagnetic radiation is exposed, is in the range between 0.04 μ l and 4 μ l.

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178. (previously presented) A device according to claim 163, wherein the device comprises a propelling means.

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If the Examiner believes, for any reason, that personal communication will expedite prosecution of this application, the Examiner is invited to telephone the undersigned at the number provided.

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Respectfully submitted,

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